# Life in and around the Green Zone

By Andrew Poe

Supporting the active duty force in the global war on terror are an unprecedented number of government civilian and contractor personnel. They are subject to many of the same hazards and hardships as their active duty comrades …

In late 2003, the Space and Naval Warfare Systems Command (SPAWAR) Systems Center Charleston (SSC), Special Communications Branch received a request from the Defense Information Systems Agency (DISA) to support its fast-track effort to build a high frequency (HF) radio network across Iraq. DISA selected the Special Communications Branch based on a recommendation from the U.S. Department of State due to our success in replacing the State Department's worldwide Emergency and Evacuation Network.

Our objective in Iraq was to stand up, as quickly as possible, an emergency communications network to link convoy communications between Baghdad and Kuwait City and along multiple supply routes throughout Iraq. In addition, the system had to provide mobile communications within the three regions of Iraq, 16 Coalition Provisional Authority sites, and communications in and around Baghdad city limits.

Since there was not a dependable long distance communications structure, we had to design and build a reliable Automatic Link Establishment (ALE) communications network from readily available off-the-shelf equipment. In HF radio, ALE provides the capability for stations to establish a contact between itself and the best HF frequency automatically without human intervention. ALE polls the network on each channel and stores the results in a memory matrix then uses the stored characteristics to establish a station-to-station connection. When not in use, each radio in the network constantly scans through its assigned channels "listening" for calls addressed to it.

## System Design

We started the project by buying radio components to install more than 220 sep-

arate systems. Since site surveys were impossible given the difficulties of intra-theater travel and the desperate need to get the network operational, two generic installation plans were developed: one for base and one for mobile stations.

We selected the Motorola Micom-2E series of base and mobile HF radios based on our success with the State Department network. Because a versatile, easily installed, rugged antenna system was required, we selected the B&W center-fed dipole antenna for base installations. For mobile installations, we chose the SGC Model SG-303 whip. The SG-303 is a high performance antenna, built to operate in rough terrain and extreme climatic conditions.

The whip antennas were installed in a variety of both light and fully armored vehicles. This turned out to be one of the most challenging aspects of the entire project. Cutting through the steel plate of fully armored vehicles to accommodate the antenna feedline was nearly impossible using a handheld drill, and we didn't have a plasma cutter.

Understandably, the drivers of the vehicles were not enthusiastic about our violating the integrity of the vehicles' protective shields. The problem was ultimately solved by convincing the manufacturer to modify the standard antenna mount and feedline. The modified unit allowed us to take a more circuitous route between the radio and antenna using existing openings in the armor plate.

## Equipment Kits

Bill of Material kits were designed for both types of installations. This approach simplified on-site logistics management, but more importantly, saved time since a field engineer only needed to pick up the appropriate kit to match the installation type.

Shipping anything to Iraq was never easy, but in the days following liberation it was nearly impossible. However, the staff of Code J023, Logistics and Transportation Branch, particularly Ms. Elizabeth "Betsy"



*Randy Kann installing a mobile antenna mount on an armored vehicle.*



*Andrew Poe awaiting transportation to Al Hillah command center at the Babil helicopter landing pad.*

Evans and Ms. Wanda Yantek, managed to move tons of our equipment. They shipped oversized antenna masts, dozens of heavy-duty 12-volt batteries and several hazardous material packages.

Using a combination of commercial carriers and the Air Mobility Command, they moved 39 separate shipments from Charleston, S.C., to Baghdad without loss or damage. Remarkably, the average delivery time, door-to-door, was less than 10 days.

In parallel with purchasing and shipping equipment, selecting and training the installation teams began. In addition to substantial technical training regarding the installation, operation and maintenance of the radio system, each field engineer was required to attend the State Department sponsored "Diplomatic Security Antiterrorism" course and the SPAWAR anti-

terrorism and security briefing. Some weapons and explosives training was also given.

There were many technically qualified candidates, but finding those willing to deploy for a projected 90-120 days in Iraq was challenging. Simply obtaining the travel documents, medical clearances and command approval for travel was a complex process. Nonetheless, we quickly had a cadre of field engineers ready to travel.

The first four engineers deployed early in 2004 and were quickly followed by four others. To date, the following engineers have deployed to Iraq: Ken Crawley, Dennis Ehney, Bill Collins, Randy Kann, Ron Chambers, Sam Caughey, Fred Bellamy and Andrew Poe. Will Terrell and Ralph DeMott are now in Iraq.

## On the ground in Iraq

I took off for Baghdad April 1, 2004, on a commercial flight from Charleston to Kuwait for three additional days of training and in-processing. At 0400 on the 5th, I was off to Baghdad but this time on a military C-130, with every seat filled. The most interesting part of the flight was the descent into Baghdad International Airport. The pilot rolled the plane in a 90-degree corkscrew dive to keep the plane inside controlled, safe airspace.

Even though it's only five miles from the airport to the Green Zone, it's probably the most dangerous road in Baghdad, and takes about 30 minutes of travel time because of numerous security checkpoints. To build the network, I had to travel between Al Faw Palace on one side of the Green Zone and the motor pool on the other with occasional trips outside the Green Zone to Regional Embassy Offices. Typically, project planning and staff meetings were held in the palace with vehicle installations completed in the motor pool. Base station installations were done in a variety of U.S. government buildings throughout Iraq.

Installing the HF system involved heavy manual labor — a lot of it. Ordinarily, I was on the roof of a building trying to erect a 30-foot mast with a 65-foot antenna connected to it. Difficult under any circumstances, but in 130-degree heat and a blistering desert wind, it was a challenge. Not only were installations physically taxing, they were in hostile areas, and it was dangerous being exposed on top of the roof! Luckily, part of the installation process was working inside air conditioned buildings to set up, configure and test equipment with the other sites.

Equipment installations were required in each major city in Iraq, so safe transportation was a chief concern. Some cities could only be reached by military air and others by fully armored, escorted vehicles. Whatever the mode, getting transportation scheduled required early planning and the flexibility to travel on short notice. Any trip outside the Green Zone required wearing a helmet and body armor.

We successfully managed logistics issues and resolved technical and engineering questions across eight different time zones, but unscheduled downtime was a recurring problem. Despite our best efforts to efficiently schedule transportation, we could spend hours waiting for transportation to the next installation.

Ultimately, I spent six months in Iraq and learned some valuable lessons. On a personal level, I found that I could survive and succeed in a hostile and constantly changing environment.

On a professional level, I discovered the benefits of careful pre-deployment planning and real-time communications. In large part, the success of the project can be attributed to the support we received from the Special Communications Branch and DISA personnel in Iraq and Washington, D.C.

The initial push to activate the network was accomplished prior to June 30, 2004, when the Coalition Provisional Authority was dissolved and sovereignty returned to Iraq. While we continue to support the program, network ownership and operational control have transferred to the State Department.

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The conference is designed to promote a collaborative environment for key engineering personnel in the Navy, Marine Corps, Army, Air Force, U.S. Joint Forces Command, Coast Guard, U.S. agencies and coalition communities to address FORCEnet related issues, processes, procedures and business rules.

The tentative dates and location for the FORCEnet Engineering Conference are June 6– 8, 2006 in Norfolk, Va., at the Norfolk Waterside Marriott.

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